

Serial Number: 09/253,611

Filing Date: February 19, 1999

itle: SELECTIVE DEPOSITION OF SOLDER BALL CONTACTS

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9. (First Amended) A method of forming a solder ball contact, comprising:

forming a metal contact pad on a substrate;

forming an insulating layer on the metal contact pad;

removing a portion of the insulating layer to expose a portion of the metal contact pad,

thereby forming an exposed portion of the metal contact pad;

immersing the substrate in molten solder;

depositing solder on the exposed portion of the metal contact pad, thereby forming a

solder contact; and

annealing the solder contact to form a solder ball contact having a diameter in a range of

about 2.5 microns to no greater than 100 microns

12. (Twice Amended) A method of forming a solder ball contact, comprising:

forming a metal contact pad on a substrate;

forming an insulating layer on the metal contact pad;

removing a portion of the insulating layer to expose a portion of the metal contact pad, thereby forming an exposed portion of the metal contact pad, the exposed portion having a predetermined diameter;

adsorbing reactants on the exposed portion of the metal contact pad;

reacting the reactants on the exposed portion of the metal contact pad, thereby forming a solder contact; and

annealing the solder contact to form a solder ball contact <u>having a diameter in a range of</u> about 2.5 microns to no greater than 100 microns.

13. (Twice Amended) A method of forming a solder ball contact, comprising:

forming a metal contact pad on a substrate;

forming an insulating layer on the metal contact pad;

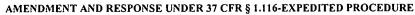
forming a resist layer on the insulating layer;

patterning the resist layer to define a future exposed portion of the metal contact pad;

removing a portion of the insulating layer to expose a portion of the metal contact pad, thereby forming the exposed portion of the metal contact pad, the exposed portion having a







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predetermined diameter;

electrolytically depositing solder on the exposed portion of the metal contact pad, thereby forming a solder contact;

removing the resist layer, thereby exposing the solder contact above a surface of the insulating layer; and

annealing the solder contact to form a solder ball contact having a diameter in a range of about 2.5 microns to no greater than 100 microns.

(Twice Amended) A method of forming a solder ball contact, comprising: 16.

forming a metal contact pad on a substrate;

forming an insulating layer on the metal contact pad;

forming a resist layer on the insulating layer;

patterning the resist layer to define a future exposed portion of the metal contact pad; removing a portion of the insulating layer to expose a portion of the metal contact pad, thereby forming the exposed portion of the metal contact pad, the exposed portion having a predetermined diameter;

electrolytically depositing a first metal layer on the exposed portion of the metal contact pad;

electrolytically depositing a second metal layer on the first metal layer, wherein the first metal layer and the second metal layer form a solder contact;

removing the resist layer, thereby exposing the solder contact above a surface of the insulating layer; and

annealing the solder contact to form a solder ball contact having a diameter in a range of about 2.5 microns to no greater than 100 microns.

Please add new claims 64-67 as follows:

(New) The method of claim 8 wherein annealing the solder contact further comprises annealing the solder contact to form a solder ball contact having a diameter of approximately 2.5 microns.